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ABSTRACT

Second and third grade students used the creative problem solving strategy developed by Sidney Parnes and Alex Osborn in their social studies classes. The second graders, finding few biographies written for students reading on a first or second grade level, interviewed community members, collected photographs of them, and wrote their biographies, which were placed in the school library. The third graders, studying political elections, became concerned about the lack of an acceptable description for the terms leader and leadership. They conducted a survey of recognized leaders in the community and state, identified common characteristics of these terms as described by the respondents, and recorded their conclusions for the benefit of themselves and other students in the school. The steps in the creative problem solving strategy are: (1) identifying a problem, (2) gathering information concerning the problem, (3) finding components of the problem, (4) brainstorming possible solutions to the selected problem, (5) finding solutions, and (6) justifying a solution and developing a course of action. This step by step process is slow at the onset, but students find the process exciting and challenging. In addition, the strategy can be used by students across the curriculum and in real life situations. (JB)

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CREATIVE PROBLEM SOLVING IN THE CLASSROOM

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CREATIVE PROBLEM SOLVING IN THE CLASSROOM

During the first year of my teaching, I attempted to integrate creative problem solving into my lessons. In one early activity, my fifth grade students researched various energy sources for producing electricity (wind, water, coal, trash, solar, atomic). The students were then put into small groups and asked to decide on the best source of electricity production for a fictitious community. Although all of the students benefited from the experience, it was the gifted students in each group that were most capable of commenting, deciding, and defending a solution to the problem.

In initial reflection, I concluded that the quality of creative problem solving I desired of my students was simply beyond the ability of the nongifted student. Perhaps this complex activity was best suited for gifted students and mature adults. After additional consideration, I decided that intelligence was not the reason the nongifted students had not been more successful. Rather, it was because they lacked experience and formal instruction in creative problem solving.

According to Stevens (1985), teachers can assist students in developing problem solving strategies. Beyer (1987) states that thinking does not just happen but must be taught and practiced. Thus, through instruction, guidance, and practice, all students should be able to develop their creative problem solving ability.

While teaching second/third grades, I discovered that young children also have an interest in social issues. Student opinions and comments shared in class

led me to the conclusion that decision making and problem solving are skills that can be meaningful, even to young elementary aged children. However, based on my previous experience with fifth graders, I realized that I needed a simple, sequential strategy to successfully instruct my students in the decision making and problem solving strategies.

Although there are many models, the one developed by Sidney Parnes and Alex Osborn as described by Juntune (1983) seems to be one of the easiest for young students to comprehend. The steps in the strategy, illustrated in Figure 1, are identifying a problem, fact finding, problem finding, idea finding, solution finding, and acceptance finding.

The Creative Problem Solving Strategy

IDENTIFYING A PROBLEM. This is the point at which creative problem solving begins. Without the perception of a problem, there can be no solution. The problem or "mess" can be discovered in an existing situation or created by the teacher for the purpose of creative problem solving. For young children, stories they are familiar with, such as "Little Red Riding Hood", are excellent sources for practicing problem situations until the students are comfortable with the process. Once the students are familiar with the steps, the strategy can be used in problem solving situations more directly related to social studies.

FACT FINDING. The second step in the strategy is gathering information concerning the problem situation. This includes answering the questions: Who?, What?, When?, Where?, and How? Designing a simple

information collection sheet (worksheet) to be used by young students can assist them in organizing the facts. Figure 2 shows an information sheet that can be adapted to fit the problem situation.

PROBLEM FINDING. In this step, students write many different problem statements beginning with the words: In what way might I...(IWWMI). As with most real life problem situations, there is often more than one problem that contributes to the given situation. By working through this step, students realize this fact and supply themselves with a variety of possible problems to attack. Figure 3 indicates an organized format which can be used for this step.

IDEA FINDING. In this step, as shown in Figure 4, the strategy entails the brainstorming of many possible solutions to the selected problem. Every student response should be recorded without criticism or comment. The purpose is to generate as many solutions as possible. Like the previous steps, this can be done in small groups and later be attempted individually as students gain familiarity with the process.

SOLUTION FINDING. This step utilizes the idea finding step and requires decision making on the part of the problem solver. Decision making is a thinking skill that should be taught separately and prior to creative problem solving. Figure 5 and 6 indicate a format that has been successful in teaching decision making to young students; however, the criteria used to evaluate the choices must be initially supplied by the teacher. As students become proficient with decision making, they can eventually develop their own criteria. The decision making activity allows the students to decide on a solution for the

selected problem based upon predetermined criteria. Therefore, the solution is not without basis.

ACCEPTANCE FINDING. In this step, illustrated in Figure 7, students justify their solution and develop a course of action. The students develop and record the steps to be taken in carrying out their solution. They also list all of the necessary materials. Students might also record anticipated problems related to their plan or required materials. The creative problem solving strategy can end here, or the plan can actually be implemented and evaluated.

The Strategy Applied

Recently, two of my social studies classes carried out their plans following the creative problem solving process. The second graders in one class were involved in biographical studies of famous Americans. In the course of their research, they discovered that there were few biographies written for students reading on a first or second grade level. They went through the creative problem solving steps. Their solution was to develop questions, interview people in the community, convert their information into sentences and paragraphs, collect photographs, and write their own biographies about these people for the school library.

The third graders in another class were studying the recent political elections. They became concerned about the lack of an acceptable discription for the terms leader and leadership which were so often used in campaign speeches. Consequently, they too used the creative problem solving strategy. Their solution

was to solicit responses on this topic from recognized leaders in the community and state. The students developed survey questions and mailed their questionnaires to city and state leaders in an effort to learn more about the characteristics of leaders and leadership. The students collected the responses to their survey and identified common characteristics of leader and leadership as described by the respondents. They then recorded their conclusions and displayed the information so other students in the school could benefit from their research project.

In both of these cases, the students worked through the creative problem solving stategy, carried out their plan of action, gathered and organized raw data, and developed a final product to share with their classmates, parents, and teachers. The strategy served as a vehicle by which the students engaged in higher level thinking, extended classroom topics of study, and developed useful life-long skills.

The greatest frustrations in teaching young students the creative problem solving strategy is time. The step-by-step process is slow at the onset; however, students find the process exciting and challenging. Eventually, they become proficient with the strategy and require less guidance. The knowledge that both gifted and nongifted students are learning to think, make decisions based upon predetermined criteria, and solve problems is extremely satisfying. In addition, this strategy can be used by students across the curriculum and in real life situations.

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Stevens, Lawrence A. "To solve or not to solve", Instructor. v 94, April 1985, pp. 55-57, 71.

Figure 1 - Creative Problem Solving

Strategy Step		Teacher Action	Student Action
1.	Identify a problem	What is the problem or mess in this situation?	Identifies the problem.
2.	Fact finding	What facts do we have concerning the situation?	Identifies facts (Who? What? When? Where? How?)
3.	Problem finding	How many contributing problems can you name?	States the problem using the words: In What Way Might I...? (IWWMI)
4.	Idea finding	Can you choose the main problem you want to solve? What are some possible solutions?	Choose the problem. Identifies alternative solutions
5.	Solution finding	Can you decide on the best solution to the problem?	Identifies a solution using generated criteria for the decision.
6.	Acceptance finding	What is your plan for making the solution work?	Develops a plan of action.

Fact Finding

Gather as many facts as possible about the Mess.

WHO?

WHAT?

WHEN?

WHERE?

HOW?

(Close your eyes. Try to visualize the Mess.)

Figure 2 - Fact Finding

Problem Finding

Use fluency to record many possible problems that might be part of the Mess. State the problem from many points of view. Begin each statement, "In what ways might I..."

IWWMI

IWWMI

IWWMI

IWWMI

IWWMI

IWWMI

IWWMI

Choose the statement that you think states the problem best.

Figure 3 - Problem Finding

Idea Finding

Write your best problem statement from step 2.

Brainstorm many possible solutions for the problem. Be flexible and creative.

Figure 4 - Idea Finding

Solution Finding

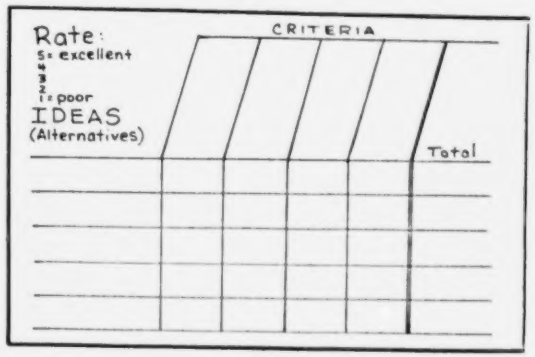
Look back at your Idea Finding worksheet and choose your four best alternatives. Write them here.

1. _____
2. _____
3. _____
4. _____

Figure 5 - Solution Finding (Step 1)

Solution Finding

Look back at your Idea Finding worksheet and choose your best ideas for alternatives and put them in the grid.
Weigh the alternatives using a number scale for rating your solutions.



Final solution choice: _____

Figure 6 - Solution Finding (Step 2)

Acceptance Finding

Make a plan of action for carrying out your solution.

Steps I will take:

_____
_____
_____
_____
_____
_____
_____

Materials I will need:

_____
_____
_____
_____
_____
_____
_____
_____

Possible Problems:

_____
_____
_____
_____
_____
_____
_____
_____

Figure 7 - Acceptance Finding